

WHAT IS CLAIMED IS:

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1. A method for decreasing sulfur levels in a mercaptan sulfur containing hydrocarbon feedstream comprising the steps of passing said mercaptan sulfur containing hydrocarbon feedstream over a fixed bed catalyst in a three phase, gas, liquid, solid, system in the presence of a stripping gas, for a time and at a temperature and pressure sufficient to decompose at least a portion of said mercaptans to produce olefins H_2S , as an off gas, and a hydrocarbon product stream having decreased levels of mercaptan sulfur and to disengage said hydrocarbon product stream having decreased amounts of mercaptan sulfur from said H_2S and said stripping gas and wherein said stripping gas is hydrogen, said fixed catalyst bed comprises (a) a non-reducible metal oxide or (b) a Group VIIIB metal promoted Group VIB catalyst, and wherein when said stripping gas is an inert gas or hydrogen, said fixed bed catalyst comprises a Group VIIIB metal promoted Group VIB catalyst.

2. The method of claim 1 wherein said inert gas is selected from helium, nitrogen, argon, methane, natural gas, light ends and mixtures thereof.

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3. The method of claim 1 wherein said non-reducible metal oxide catalyst is selected from alumina, silica-alumina, magnesium oxide, and mixtures thereof and said Group VIIIB promoted Group VIB catalyst is selected from the group consisting of cobalt, and nickel promoted molybdenum catalysts.

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4. The method of claim 2 wherein when said stripping gas is gas comprising hydrogen and said catalyst is a Group VIIIB promoted Group VIB catalyst, said stripping gas comprises no more than 1/2 mole % hydrogen sulfide and no more than 50 mole % hydrogen.

5. The method of claim 1 wherein said mercaptan sulfur containing hydrocarbon feedstream is a hydrodesulfurized feedstream.

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6. The method of claim 1 wherein said method includes a hydrodesulfurization step to produce said mercaptan sulfur containing hydrocarbon feedstream.

7. The method of claim 6 wherein said hydrodesulfurization step is SCANfining.

8. The method of claim 1 wherein said mercaptan sulfur containing hydrocarbon feedstream is a C₅⁺ mercaptan containing feedstream.

9. The method of claim 1 wherein said three phase system is a countercurrent system.

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10. The method of claim 1 wherein said three phase system is a concurrent system.

11. The method of claim 3 wherein said catalysts are sulfided catalysts.

12. The method of claim 1 wherein said mercaptan sulfur containing hydrocarbon feedstream contains less than 30 ppm of non-mercaptan sulfur.

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13. The method of claim 1 wherein said mercaptan sulfur containing hydrocarbon feedstream contains less than 30 ppm of non-mercaptan sulfur and greater than 30 ppm of mercaptan sulfur.

~~14. The method of claim 13 wherein said mercaptan sulfur containing feedstream is produced from a hydrodesulfurization process.~~

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